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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,747	03/16/2004	Lijie Qiao	76855-30 /pw	1176
7380	7590	04/10/2007	EXAMINER	
SMART & BIGGAR			BOLDA, ERIC L	
P.O. BOX 2999, STATION D			ART UNIT	PAPER NUMBER
900-55 METCALFE STREET				
OTTAWA, ON K1P5Y6			3663	
CANADA				
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/10/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/800,747	QIAO ET AL.
	Examiner	Art Unit
	Eric Bolda	3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 08 January 2007.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 3-38 is/are pending in the application.

4a) Of the above claim(s) 2432 is/are withdrawn from consideration.

5) Claim(s) 33-38 is/are allowed.

6) Claim(s) 3-23 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jan. 8, 2007 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed Jan. 8, 2007 with respect to claims 3-23 and 25-27 have been considered but are moot in view of the new ground(s) of rejection. Although claims 3, 9 and 23 were indicated as allowable if rewritten in independent form, they are rejected in this action. Any inconvenience to Applicant is regretted. Claims 28 to 32 are still considered withdrawn as belonging to a non-elected species.

### ***Claim Objections***

3. Claim 3 is objected to because of the following informalities: in the first paragraph “*optical* amplification media segments” are recited, but in the third paragraph these are called “*fiber* amplification media segments”, so it is unclear whether the segments are fibers or any type of optical amplification media. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 3-11, 16, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamoto et al. (US Pat. No. 6,738,181) cited in the Notice of References mailed March 3, 2006.

Nakamoto discloses in Fig. 3 an optical transmission system, comprising a plurality of optical amplifiers (103-1,2,3...) in series, each optical amplifier including n erbium-doped optical fiber (12<sup>th</sup> col. lines 44-46), i. e. amplification media segment. Subsequent to each optical amplifier is an optical add-drop multiplexer (OADM) (104-1,2,3...), which drops a specific channel (equivalent physically to a signal within a specific wavelength range) (12<sup>th</sup> col. lines 61-65).

With regard to claims 3, 9, and 23, the clauses "so as to exploit a gain versus optical amplification media physical length characteristic" are essentially statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re

Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

With regard to claim 3, each subsequent concatenated fiber adds to the total physical length of the fiber amplification media in the apparatus. The lengths of fiber amplification media are supplied with energy from a pump laser), and provide a gain response over the WDM optical signals (12<sup>th</sup> col. lines 46-51).

With regard to claim 4, the amplification occurs at a band near 1.55 microns (=1550 nm) (12<sup>th</sup> col. lines 57-60).

With regard to claims 5-11, the clauses "wherein the wavelengths are located on a standard telecommunications grid..", "wherein the wavelength 1550+/- 6.5 nm is dropped" and "wherein the wavelength ranges are .." and "wherein the apparatus is used to amplify a plurality of dense wavelength division multiplexed (DWDM) wavelengths.." are recitations to the signal processed by the apparatus. As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

With regard to claim 23, the OADM's (104) are located between the amplification segments in (103), and include multiple ports, e. g. optical couplers, configured to drop a wavelength after the preceding segment, and pass the remaining signal on towards the subsequent segment (12<sup>th</sup> col. lines 61-67).

With regard to claim 16 the amplification fibers are erbium-doped (12<sup>th</sup> col lines 57-58).

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamoto in view of Cornwell, Jr. et al. (US Pat. No. 6,356,383).

Nakamoto disclose all the features of the claims except the the plurality of fiber amplification segments are collectively supplied with pum p laser energy using at least one pump. However, Cornwell Jr. teach in Fig. 5 a multi-stage amplifier in which the stages (36) are collectively pumped by several pump lasers (12). The pump lasers are coupled to the plurality of fiber amplification media segments via couplers (32).Note that there may be only one pump laser (7<sup>th</sup> col. lines 40-43). It would have been obvious to one skilled in the art (e. g. an optical engineer) to use the configuration of pumps and couplers of Cornwell Jr., in the apparatus of Nakamoto for the advantage of effiecent use of excess pump light (7<sup>th</sup> col. lines 2-5).

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamoto in view of Shimojoh (US Pat. No. 6,417,960)..

Nakamoto disclose all the features of the claims except a noise suppression filter. However, it is well-known to use a noise suppression filter such as that taught in Shimojoh in an optical transmission system for the advantage of filtering ASE noise and flattening the gain of an optical amplifier. In Fig. 3 of Shimojoh teaches the filter (1-3) is placed after the amplification optical fiber (1-1). The wavelength range of the filter is shown in Fig. 2; wavelengths fro 1603nm to 1617nm are filtered.

Claims 21-22 areted under 35 U.S.C. 103(a) as being unpatentable over Nakamoto in view of Kosaka (US Pat. No. 5,675,432).

Nakamoto discloses all the features of the claims except a plurality of fiber taps and photodetectors used at the input and output of the apparatus, and a plurality of optical isolators in series with the fiber amplification segments. However, Kosaka teaches in Figs. 10-11 an optical amplifier with input and output fiber taps (35) and (33), input and output monitors (a well-known example is photodetectors (11)) (36) and (34), and optical isolators (7), (13) in series with the optical amplification fiber (10). It would have been obvious to one skilled in the art (e. g. an optical engineer) to use the optical taps, monitors and optical isolators of Kosaka, in the apparatus of Nakamoto, for the advantage of controlling power deviations at specific wavelengths (Kosaka, 12<sup>th</sup> col. lines 1-15). Isolators are used to prevent input light signals from flowing back into the amplifier.

***Allowable Subject Matter***

8. Claims 33-38 are allowed.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Bolda whose telephone number is 571-272-8104. The examiner can normally be reached on M-F from 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Keith, can be reached on 571-272-6878. Please note the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Eric Bolda*

Eric Bolda